International Business and Global Economy 2016, no. 35/2, pp. 350–366
Biznes międzynarodowy w gospodarce globalnej 2016, nr 35/2, s. 350–366

Edited by the Institute of International Business, University of Gdańsk
ISSN 2300-6102
e-ISSN 2353-9496 DOI 10.4467/23539496IB.16.069.5650

Alina Grynia
Uniwersytet w Białymstoku
Wydział Ekonomiczno-Informatyczny w Wilnie

Innovation activity of Lithuanian enterprises in the age of globalisation

In the modern world economy business development is influenced by globalization and regional integration. As a result, companies operate in the environment characterized by a tightening competition and rapid technological progress. Several studies conducted at both company and national level reveal a significant impact of innovation activities on the condition of individual enterprises as well as the whole economy. In relation to the above, the purpose of the article is to examine the level of innovation activity undertaken by Lithuanian companies and to show its similarities and differences in relation to EU companies. The first part of the article brings up the theoretical foundations of innovation, while the next parts use secondary data obtained from the Lithuanian Department of Statistics and Eurostat in order to provide the level of innovation activity. The article uses statistical and comparative analysis.

Keywords: innovation activity, companies, Lithuania

JEL classification: O30, L24

Działalność innowacyjna litewskich przedsiębiorstw w dobie globalizacji

We współczesnej gospodarce światowej rozwój biznesu odbywa się pod wpływem globalizacji i integracji regionalnej. W efekcie przedsiębiorstwa działają w otoczeniu cechującym się zaostrzającą się konkurencją oraz szybkim postępem technicznym. Liczne badania prowadzone zarówno na poziomie przedsiębiorstw, jak i krajowym pokazują istotny wpływ podejmowanej działalności innowacyjnej na kondycję poszczególnych podmiotów gospodarczych oraz całych gospodarek. W związku z powyższym, za cel artykułu przyjęto zbadanie poziomu działalności innowacyjnej podejmowanej przez litewskie przedsiębiorstwa oraz ukazanie podobieństw i różnic ich innowacyjności w odniesieniu do firm z Unii Europejskiej. W pierwszej części artykułu przybliżono teoretyczne podstawy innowacyjności, a w kolejnych wykorzystano dane wtórne pochodzące z Departamentu Statystyki Litwy oraz Eurostatu w celu przedstawienia poziomu działalności innowacyjnej. W artykule zastosowano analizę statystyczną i porównawczą.

Słowa kluczowe: działalność innowacyjna, przedsiębiorstwa, Litwa

Klasyfikacja JEL: O30, L24

Introduction

The level of innovation in the Lithuanian economy is generally evaluated by experts as relatively low. According to the *Innovation Union Scoreboard 2015* classification, the country was included in the group of 'moderate innovators'. Considering the individual indicators that make up the Summary Innovation Index, it can be stated that the innovation performance of Lithuania is below that of the EU average for the vast majority of the indicators. The most unfavourable situation is in the category 'firm activities' [Hollanders, Es-Sadki, Kanerva, 2015].

Therefore, the goal of the research was to examine the level of innovation activities undertaken by the Lithuanian companies. The level of innovation activity of Lithuanian companies was rated by the share of innovative enterprises in all enterprises and their breakdown by type of implemented innovation, employment rate, and type of economic activity. The economic aspects of innovative activities were illustrated by the analysis of expenditure on innovative activities (size, structure and source) and the effects of these activities. The final part of the analysis gives an overview of the objectives and barriers of innovation activity. All the analysed aspects of the innovation of Lithuanian companies were shown in relation to the EU average, which allowed highlighting the similarities and differences between them.

The article uses the results of surveys carried out by national statistical institutes of the EU Member States and published by Eurostat in the form of Community Innovation Surveys reports and by the Department of Statistics of Lithuania presented in the form of periodic reports *Development of Innovation Activities*.

1. The nature and types of innovation

The economic literature does not provide a consistent and uniform definition of innovation. Innovation is often considered from one of two perspectives: as a process or as a result [Janasz, Kozioł, 2007]. In the first case, innovations are defined as all processes of creative thinking aimed at the application and use of improved solutions in machinery, technology, organization and social life. In the second case, innovation is a good, a service or an idea perceived by the customer as new [Pomykalski, 2001].

The precursor of the theory of innovation in economic sciences was Joseph Schumpeter. According to him, innovation meant the launch of new products, the application of new production methods, the opening of new markets, the acquisition of new sources of supply of raw materials, and the introduction of a new organization [Schumpeter, 1962]. Meanwhile, any dissemination of innovation was

considered by the author as a separate stage of changes known as imitation. Such an approach to innovation is regarded as classical.

On the other hand, Michael E. Porter perceived innovation in the context of the exploitation of new ideas which are expected to bring economic benefits, technological improvements, or better methods or ways to produce particular things [1990]. This broad view of innovation includes both simple modifications of existing products and processes that may be new to the enterprise, but not to the market, as well as fundamentally new ones, both to the company and to the market [Matusiak, 2011]. Similar explanation of innovation was given by Philip Kotler, who defined innovation as a good, a service or an idea perceived as new, even if they have been around for a long time [1994].

The diversity of approaches to defining innovation created significant problems of measurement and comparability of data on the scale and scope of innovation. Therefore, in the 1990s the European Commission and the OECD developed a so-called *Oslo Manual*, which contains the definitions and models of innovation as well as guidelines for the collection and use of data on innovation activities in industry, thus ensuring their international comparability. According to the handbook, 'innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method' [OECD, Eurostat, 2005]. It should be emphasized that this definition refers to the one proposed by Schumpeter.

Thus, the company is considered to be innovative when it puts into practice new solutions in relation to the process, product, marketing and organization – both the ones already used by competitors in the world but not yet in the country, and the ones already used by competitors in the domestic market but not yet by the company. Innovative activities can be carried out by the company itself on its own territory (within the company), or they may involve the purchase of goods and services from external sources.

In the literature a variety of classifications of innovations can be found. They vary due to different criteria applied, ranging from the causes for occurrence and place of usage to the results of performance [Dolińska, 2010]. However, according to the classical approach, innovations are divided into two categories: technological, i.e., those related to the product and the production process, and non-technological, which include organizational and marketing innovation.

2. Innovative activity of Lithuanian enterprises

An analysis of the data presented by the Department of Statistics of Lithuania (DSL) in the field of innovative activity of enterprises for the period between 2002 and 2012 indicates an increase in the percentage of innovative companies from

23.4% to 30%. Despite the general upward trend, a decline in the percentage of innovative enterprises in recent years, compared to the period between 2008 and 2010, should be noted. The decline was evident among companies operating both in industry and services sectors. However, the latest available information indicates that in the years 2012–2014 the downward trend was halted and the percentage of innovation active companies rose to 36% (Figure 1).

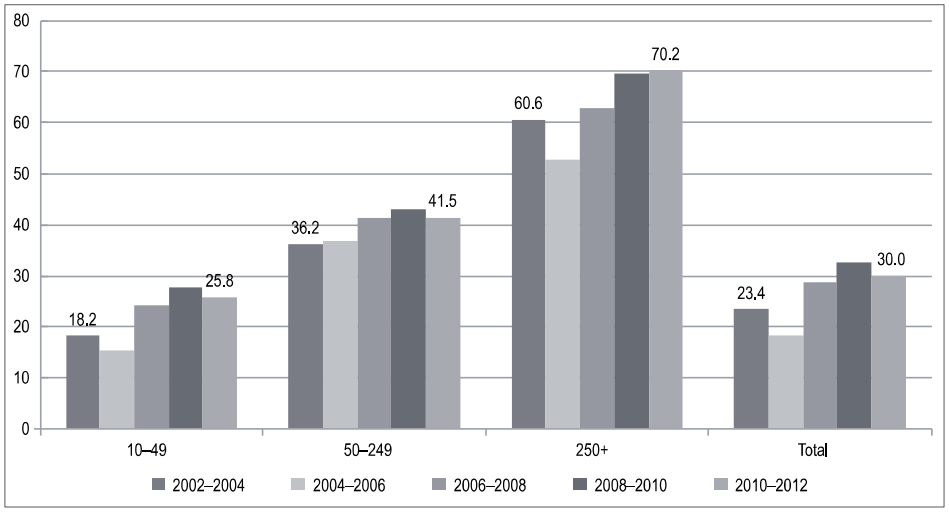

Figure 1. Innovative enterprises in 2002–2012 by enterprise size class (% of all enterprises in the respective enterprise group)

Source: [DoIA, 2014].

The presented information shows that in the analysed period the percentage of companies that did not undertake any innovative activity was relatively high: Lithuanian enterprises that did not lead such activities constituted approx. 70% on average.

To assess the level of innovativeness of Lithuanian enterprises in comparison to EU countries, the data from the recent *Community Innovation Survey* (CIS) for 2010–2012 can be used. According to the report, the percentage of companies engaged in ongoing or abandoned innovative activities (in terms of products, processes, marketing methods or organizational methods) ranged from 66.9% in Germany to 20.7% in Bulgaria; thus, the difference between the countries was more than 46 p.p. The average level for the EU-28 was around 50% (Figure 2).

On the basis of the results achieved, all EU Member States can be divided into 4 groups. 'Innovation leaders' in the field of innovation activity of enterprises in 2012 were Germany, Luxembourg, Ireland, Italy, Sweden and Belgium, where the

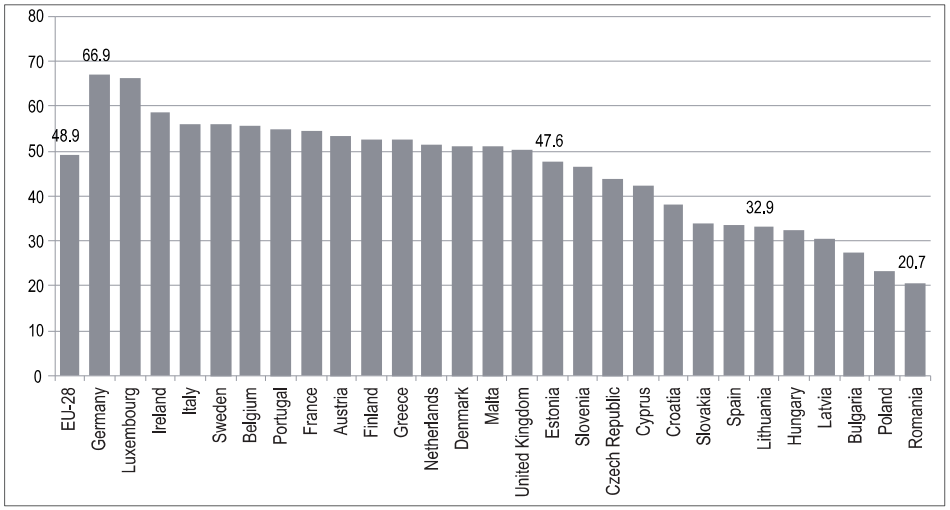

Figure 2. Proportion of innovative enterprises in EU countries in 2010–2012 (compared to all enterprises, %)

Source: [CIS, 2012].

share of innovation active companies ranged from 55.6% to 66.9%. The next group consists of the subsequent nine countries which had the percentage of innovative firms above that of the average of the EU-28 and can thus be termed 'Innovation followers': Portugal, Austria, France, Finland, Greece, the Netherlands, Denmark, Malta and the United Kingdom. The third group of countries, 'Moderate innovators', was led by Estonia as a top performer with a rate of 47.6% (lower by 1.3 p.p. than the EU-28). The lowest rate in the group was that of Latvia, where the proportion of innovative active companies was 30.4%. Three other countries – Bulgaria, Poland and Romania – constitute the fourth group, 'Modest innovators'. According to the division, Lithuania belonged to the group of 'Moderate innovators' with the rate lower than the average by 14.7 p.p., but higher by 12.2 p.p. than the result of Romania. Germany and Luxembourg had twice as many active innovative companies as Lithuania, but the history of the market economy of these developed countries is much longer than Lithuania's. Figure 3 shows the comparison of the results of innovation activity of Lithuanian enterprises with the countries similar in terms of economic development, which became part of the EU in 2004.

The highest percentages of innovation active enterprises in the group of EU-10 were those of Estonia, Slovakia, the Czech Republic and Cyprus, ranging from 47.6% to 42.1%. In Slovakia, Lithuania, Hungary and Latvia innovation activity was undertaken on average by one third of companies. By contrast, Bulgaria's and Poland's shares of innovative enterprises ranged between 27.4% and

23%. The percentage of innovative companies in Lithuania was lower by 14.7 p.p. than Estonia's and almost 10 p.p. higher than Poland's.

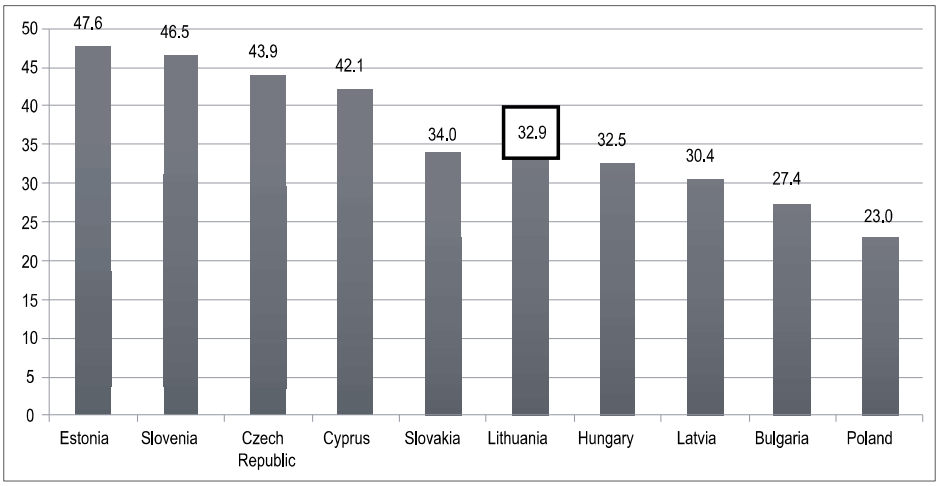

Figure 3. Innovative enterprises in EU-10 countries in 2010–2012 (compared to all enterprises, %)

Source: [CIS, 2012].

The observed decrease in the level of innovation active enterprises in Lithuania in 2010–2012 compared with the results of the previous period is also characteristic of many EU countries. In the case of 16 Member States a decrease in innovation activity in 2008–2012 can be observed. The biggest negative changes affected one of the innovation leaders, namely Germany, with a decline in the percentage of innovative companies of over 12 p.p. compared with the previous edition of the survey. The lowest rates of innovation could be observed in Belgium, Portugal, the Netherlands, Estonia, Spain, Poland and Romania (decrease by over 5 p.p.) [CIS, 2010]. This decrease was probably due to the fact that some countries had not yet made up for the losses caused by the crisis.

The innovative activity of enterprises in Lithuania analysed by size class showed more favourable results. It was noticed that participation in the innovative activity is the domain of large companies, which is conditioned by their greater economic potential. According to the DSL, in 2012 more than 70% of Lithuania's large enterprises were engaged in innovation activities, whereas in the group of medium and small enterprises this percentage was much lower – 42% and 26%.

The leader in the group of large enterprises among the EU countries is Luxembourg, where innovative enterprises account for nearly 93% of the companies sur-

veyed. Lithuania's result can be evaluated as average: a lower share of large innovative companies compared with Lithuania was noted in nine countries. The situation was worse in the case of small businesses, as the worse results were shown by only four countries – Latvia, Bulgaria, Romania and Poland [CIS, 2012].

In terms of the total number of innovative active enterprises, small enterprises constitute the largest group. Their percentage increased from 58% in 2002 to nearly 68% in 2012 (Figure 4).

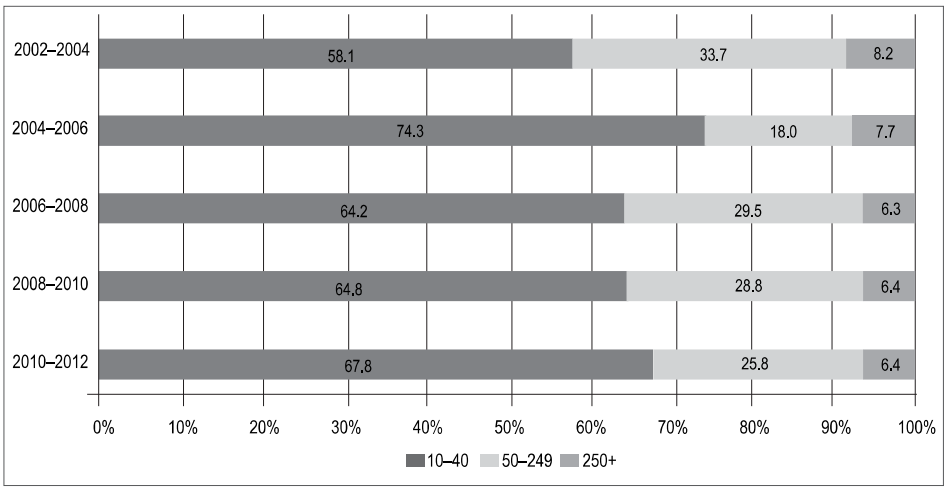

Figure 4. Innovative enterprises in Lithuania by enterprise size class (all innovative enterprises = 100, %)

Source: [CIS, 2012].

Further analysis of innovation dealt with the processes taking place in companies and types of innovation implemented in them. The highest percentage of innovative companies in the field of technological innovation (product and process) in the years 2010–2012 was recorded in Germany (Figure 5).

In 2012, 55% of German companies were engaged in innovation activities concerning new or significantly improved products or processes (36% for the entire group). By contrast, the above-mentioned rate reached 16% in Poland and only 6% in Romania. The leader in the field of non-technological innovation was Luxembourg, where half of the companies implemented innovation in marketing or organization. By far the least number of companies introduced innovation of new organizational methods and marketing in Bulgaria, Romania (19%) and Poland (16%).

The percentage of innovative enterprises in technological innovation in Lithuania in the period between 2010 and 2012 reached 19%, while in non-technological innovation – 26%. In both cases, these indicators were significantly

below the average for the EU-28 (17 p.p. and 11 p.p., respectively). The above results show that Lithuanian companies more often implement innovation in the marketing and organizational areas than in the area of products or processes.

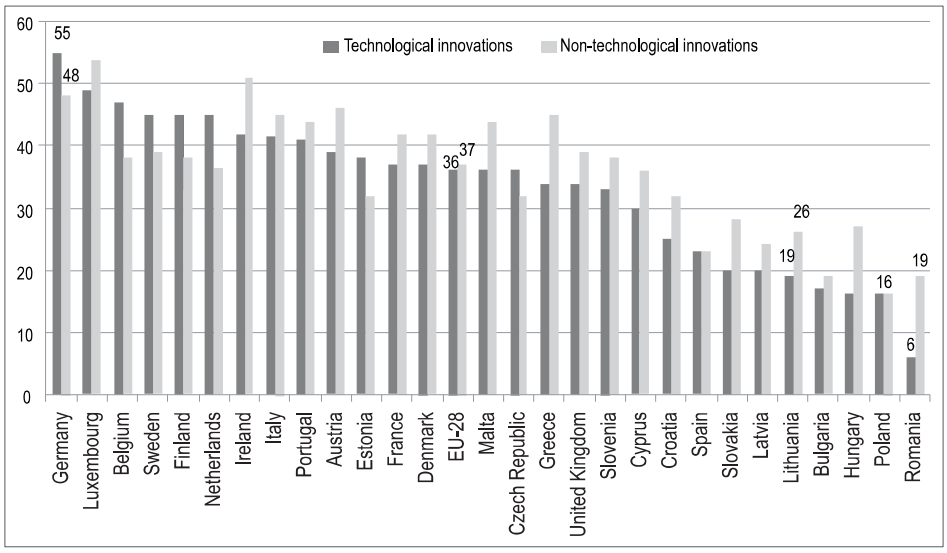

Figure 5. Innovative enterprises in EU countries in 2010–2012 by kind of innovation (compared to all enterprises, %)

Source: [CIS, 2012].

The results varied depending on the size of the company. Lithuanian small businesses employing from 10 to 49 people are characterized by much lower technological (13%) and non-technological (21%) innovation in comparison to the average for the EU-28 (32% and 34%) (Figure 6). Especially significant difference occurs in the case of product and process innovations (19 p.p.). Lithuanian medium-sized and large enterprises achieve higher positions in terms of technological innovation. The numbers are as follows: 27% for medium-sized enterprises (versus 48% for the EU-28) and 53% for large enterprises (versus 65% for the EU).

The percentage of medium-sized enterprises applying innovative methods of marketing and organization was also high and reached 32%. By contrast, nearly 60% of enterprises employing more than 249 people introduced non-technological innovation (compared to 61% in the EU). A much lower result in the group of large enterprises was achieved in the context of technological innovation.

Generally, the larger the Lithuanian company is, the more it is involved in innovation activities. For all size groups of enterprises, non-technological innovation activities were more important than the technological ones. As far as European countries are concerned, the activity of enterprises in technological and non-

technological innovations remained at the same level regardless of the size of the company.

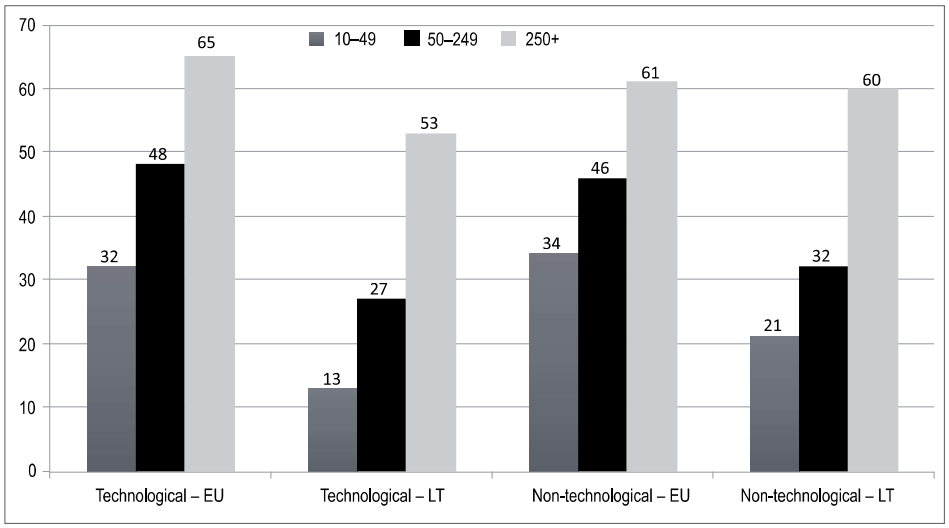

Figure 6. Innovative enterprises by kind of innovation and enterprise size class, %
Source: [CIS, 2012].

Considering the type of the business, the largest percentage of innovation active enterprises (60%) occurred in 2010–2012 in section J – Information and communication. Most of them introduced innovation in products and processes. Among the EU countries, the leaders in this section were German (approx. 77%) and Portuguese (approx. 87%) companies (Table 1).

The companies from sections K (Financial and insurance activities) and D (Electricity, gas, steam and air conditioning supply) are characterized by a high level of innovation both in Lithuania and the EU countries. More than half of Lithuanian companies from section K implemented innovation in products and processes and approx. 51% of companies in section D – in marketing or organization. The leader in section K is Luxembourg (77.6%), while in section D the country holding the leading position is Cyprus, where practically every company in this industry is considered innovative.

The least innovative of the examined sections are: section F (Construction) and section H (Transportation and storage), where the percentage of innovative Lithuanian enterprises stood at approx. 19%, with a predominance of non-technological innovation.

The presented data confirms previous arguments in terms of the type of implemented innovations – Lithuanian companies more often introduced organiza-

tional and marketing innovations (in 8 sections out of 10). Product and process innovations often took place in enterprises of sections J and D.

Table 1. Innovative enterprises by kind of innovation and economic activity in 2010–2012 (compared to all enterprises engaged in the respective economic activity, %)

Sections	2004–2006	2010–2012	2010–2012	
			technological	non-technological
B – Mining and quarrying	28.9	27.1	10.4	14.6
C – Manufacturing	40.0	35.9	8.9	14.6
D – Electricity, gas, steam and air conditioning supply	40.0	47.1	20.2	11.2
E – Water supply, sewerage, waste management and remediation activities	37.6	33.5	8.5	14.8
F – Construction	33.5	18.7	4.5	9.4
G – Wholesale and retail trade	28.8	31.4	4.0	14.2
H – Transportation and storage	29.3	18.6	1.6	11.4
J – Information and communication	27.8	60.4	16.7	15.7
K – Financial and insurance activities	67.7	50.8	4.9	18.8
M – Professional, scientific and technical activities	49.2	36.4	7.4	15.7

Source: [DoIA, 2014].

3. Economic aspects of the innovative activity: Expenditures and sales turnover

The introduction of innovation requires proper investments. The expenditures are likely to arise from the need to conduct research and development activities, the purchase of specialized equipment, use of modern technology and the acquisition of knowledge from external sources. All these activities entail significant costs, especially in the initial phase of implementation.

Over the years 2004–2012, expenditures on innovation activities in enterprises in Lithuania almost doubled. In 2012, they amounted to EUR 838.6 million, nearly 40% of which was incurred by the manufacturing companies. Total expenditure on innovative activities for one company in the EU is shown below (Figure 7).

As reported by Eurostat, the average size of innovative investment per company in the EU in 2012 was just over 1.1 million. According to the size of the commitment of funds for one company, the leader was Denmark, with expenditure exceeding EUR 2.4 million. Lithuanian innovative enterprise allocated on average

EUR 455,000 in this type of activity, which was 2.5 times less than the average for the EU-28, 5.4 times less than in Denmark, but 2.2 times more than in Bulgaria.

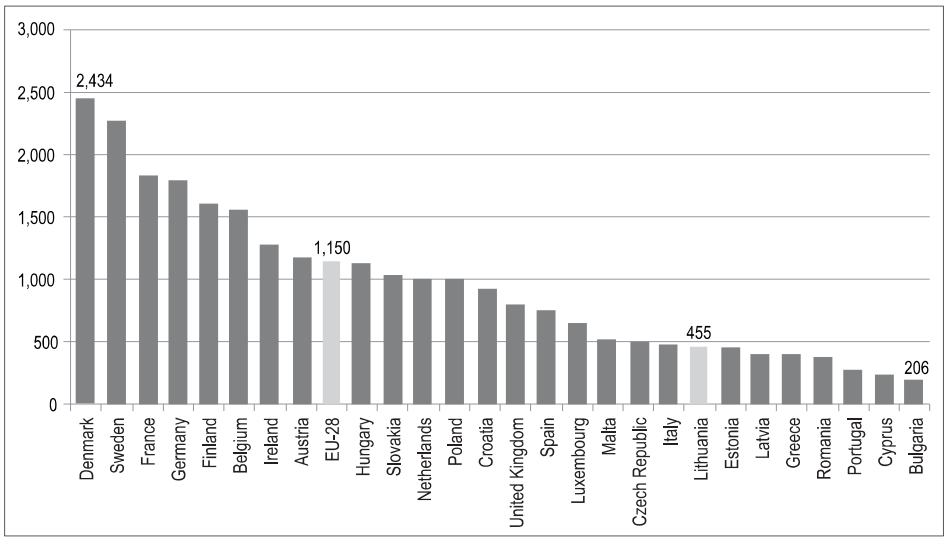

Figure 7. Total innovation expenditure in the EU countries in 2012 (EUR thousand per enterprise)

Source: [CIS, 2012].

The position of Lithuanian enterprises in the group of small businesses in comparison with other countries is significantly better than in the group of medium-size or large companies. The expenditure on innovation activities spent by a small Lithuanian company (EUR 230,000) is similar to that of a Danish one (EUR 282,000), which ranks Lithuania 8th out of 28 countries. Meanwhile, medium-sized companies allocated EUR 371 thousand for innovative activities (24th out of 28), while large – more than EUR 2.2 million (25th place) [CIS, 2012].

The aforementioned increase in total expenditure on innovative activity is also visible in relation to the expenditure per company. Compared with the results of the study of 2008–2010, expenditures on innovation activities of Lithuanian companies increased by 21%, i.e., the same as the average for the EU countries. Countries that almost doubled their average spending per company are Bulgaria, Croatia, Hungary, Slovakia, Latvia and Estonia [CIS, 2010].

The structure of expenditures on innovation of Lithuanian enterprises in 2012 was dominated by acquisition of machinery, installation and equipment, which accounted for 73.8% of all expenditures on innovation. The least funds (approx. 2.5%) were allocated for the purchase of extramural R&D or other external knowledge (Figure 8).

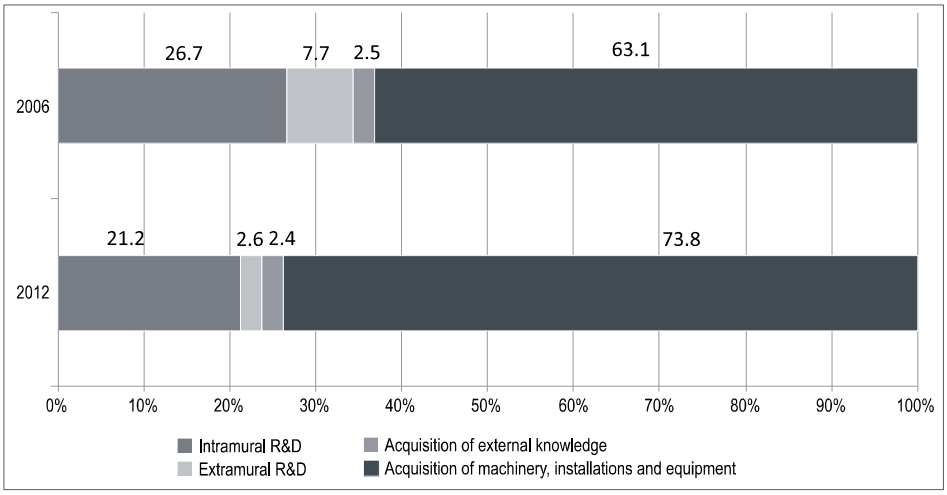

Figure 8. Structure of innovation expenditure in Lithuania in 2012 (all innovation expenditure = 100)

Source: [DoIA, 2014].

Over the years 2006–2012, the structure of the above-mentioned investment did not change significantly. In the case of research and development and purchase of extramural R&D, there was a drop in the share (by more than 5 p.p.) and an increase in the share of funds allocated for the purchase of machinery and equipment (by more than 10 p.p.). In 2012, the percentage of companies conducting intramural R&D activities was nearly 40% of the total number of Lithuanian companies operating in the field of innovative products and processes, while the average investment on such activities per company stood at approx. EUR 202 thousand (the average for the EU was EUR 874 thousand). By contrast, concerning extramural R&D activities this percentage dropped to 22%, and the average expenditure – to EUR 51 thousand [CIS, 2012].

In 2012, nearly half (47.4%) of innovation active enterprises benefited from public funding. Compared to the previous period, their share increased by more than 10 p.p. A very significant increase in public support was observed in the case of construction companies, whose share increased by 32 p.p. compared to 2010. The funds obtained from abroad constituted the largest part of these expenditures [DoIA, 2014].

To evaluate the effects of innovative activity of enterprises DSL uses participation rate of sales turnover of innovative enterprises in the total turnover in the year under review. In 2012, the above-mentioned rate reached over 63% and was higher than the one recorded in 2006 by more than 6 p.p., which indicates an increase in the share of turnout of innovative companies. Particularly strong boost

in the share took place in Transportation and for companies in section B (Mining and quarrying). Much lower growth, similar to the national average, was recorded in Manufacturing (Table 2). In other industries the share of sales turnover of innovative enterprises decreased. The largest decrease was recorded in sections M (Professional, scientific and technical activities), J (Information and Communication) and D (Electricity, gas, steam and air conditioning supply).

Table 2. Proportion of the turnover of innovative enterprises, compared to all enterprises engaged in the respective economic activity (by economic activity, %)

	Total	B	C	D	E	F	G	H	J	K	M
2006	57	45.4	74	74.7	57	41.1	48.5	23.2	84	93.8	46.2
2012	63.4	68.5	82.7	67.3	50.9	39.5	42.4	51.9	76.3	90.7	37.1
Change	+6.4	+23.1	+8.7	-7.4	-6.1	-1.6	-6.1	+28.7	-7.7	-3.1	-9.1

Source: [DoIA, 2014].

When assessing the effects of innovation activities of enterprises, close attention should also be paid to the formation of the average sales turnover of products new to the company or new to the market per enterprise. This indicator for the EU-28 in 2010–2012 stood at just over EUR 10 million in the case of products new to the company and nearly EUR 9 million in the case of products new to the market (Figure 9).

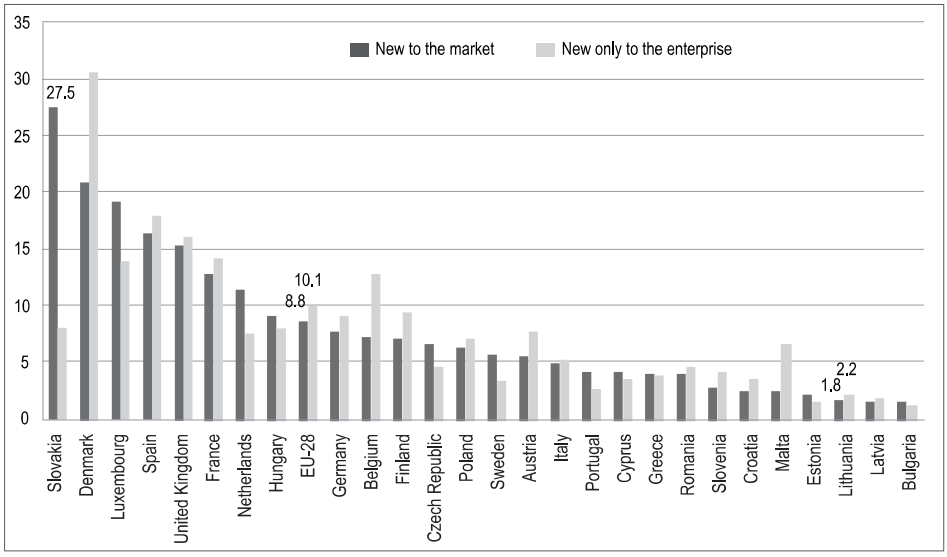

Figure 9. Turnover of innovative products by type (novelty) of product innovation in 2010–2012 (EUR million per enterprise)

Source: [CIS, 2012].

Lithuanian companies which introduced a new product (from the point of view of the company) achieved EUR 2.2 million sales turnover of these products, i.e., approx. EUR 8 million less than the EU average. Lower results in this field were achieved only by Latvian, Estonian and Bulgarian companies. The leader in terms of sales turnover of new products to the company was Denmark with a score of EUR 30.5 million for an average company. The second place in this category went to companies in Spain, whose results were almost half lower (EUR 17.9 million).

In turn, the turnover of new products to the market was EUR 1.8 million for Lithuania and was lower than the EU average by EUR 7 million. In this case, the results of Lithuanian companies were one of the lowest among European countries, as only companies in Latvia and Bulgaria achieved lower scores (EUR 1.7 million). Among the enterprises implementing innovations new to the market the highest turnover rates were achieved by companies in Slovakia (EUR 27.5 million) and Denmark (EUR 20.9 million).

More than half of the innovative companies in 2010–2012 sold their production in the domestic market and 26% in foreign markets: 18% in the markets of other EU countries and 8% in the third-country markets. In the case of non-innovative companies, regional markets as well as national markets increase in importance, with numbers reaching 30% and 41% of entities respectively. In comparison to the previous period (2008–2010), innovative companies experienced an increase in the importance of domestic markets (by over 5 p.p.) and markets in non-EU countries (by 3 p.p.) and a decrease in the importance of regional markets (by approx. 3 p.p.) and EU markets (by 5.6 p.p.) [DoIA, 2014].

4. Objectives and barriers of innovation activity

Striving for their business development, Lithuanian companies set certain general objectives. The most common include cost reduction, increasing market share, and growth of profit margins or turnover. The data presented below (Figure 10) contains the responses of both innovative and non-innovative companies indicating that specific goals are a matter of great importance.

The increase in turnover is the main objective of both innovative (over 67%) and non-innovative companies (approx. 55%). It is not the highest score when compared to other EU countries, as in Hungary nearly 9 out of 10 companies considered this their most important goal. Other priorities were of similar importance for the strategy of Lithuanian innovative companies. More than 57% of respondents regarded costs reduction and market share increase as the most important strategic goals, while 54% highlighted the importance of profit margin growth.

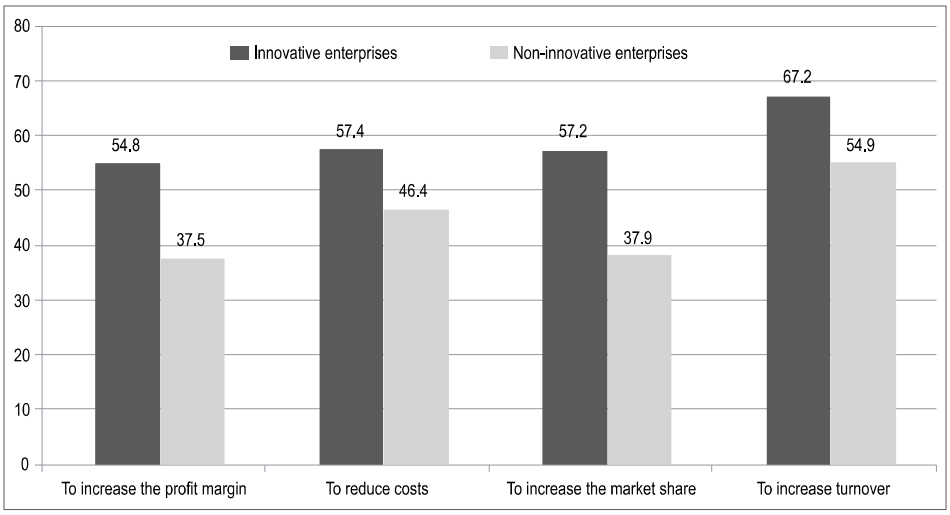

Figure 10. Share of Lithuanian companies which over the years 2010–2012 attached high importance to the following goals, %

Source: [DoIA, 2014].

A more detailed analysis of the general objectives indicates that innovative companies are striving to reduce costs. For a greater percentage of enterprises a strategy focused on cost reduction refers primarily to a reduction in operating costs (53.5%), and subsequently to a cut in the cost of materials, components or services (48.5%). It may also be noted that for 45.2% of innovative companies another crucial aim is to increase the flexibility and response of the company.

Obstacles to achieving the objectives of the company tend to be different. They are variously classified according to the objectives and the type of innovations. Some of them refer to all types of innovation, there are also reasons for not undertaking any innovative activity. In the analysed period, the biggest obstacle to achieving the objectives by Lithuanian innovative enterprises was strong price competition: 54% of innovative enterprises and 48% of non-innovative admitted facing it. The second place in terms of the percentage of companies that recognize it as an important obstacle is strong competition on product quality, how the product or brand is perceived (36.7%) [DoIA, 2014].

It should be noted that innovative European companies similarly assessed the degree of influence of the mentioned obstacles to the implementation of strategic business objectives. Strong price competition was pointed out by every seventh company from Cyprus, Austria, Portugal, Malta and Estonia. In contrast, competition in terms of product quality mostly affected companies from Malta and Hungary.

For Lithuanian enterprises, the obstacles of particular significance are the lack of sufficient funds (current assets – 32.7%), and high market entry costs (27.8%).

Conclusions

Considering the research results, the following conclusions can be drawn:

- in 2012, only one third of all Lithuanian enterprises were engaged in innovation activity. Despite an increase in the number of innovative companies in the period 2002–2012, the share of Lithuanian innovative companies is much lower than the average for the EU-28 (by approx. 15 p.p.), which places the country among Moderate innovators;
- involvement in innovative activity is mainly the domain of large enterprises, as more than 70% of Lithuania's large enterprises are innovatively active. In terms of the total number of innovative enterprises, small enterprises accounted for the largest proportion of innovative enterprises (approx. 68%);
- Lithuanian companies more often apply innovative marketing and organizational activities (26%) than implement new or significantly improved products and processes (19%). The results vary depending on the size of the company. Small businesses are characterized by a much lower innovation level, both technological and non-technological, compared to the average of the EU-28;
- high levels of innovation both in Lithuania and in the EU distinguish companies from the section of information and communication, engaging in financial and insurance activities as well as supplying electricity, gas and water. The least innovative enterprises operated in trade and transport;
- over the years 2004–2012, expenditures on innovation activities in enterprises in Lithuania almost doubled. However, the average size of investment per average Lithuanian company is 2.5 times lower than in the EU-28;
- in the structure of expenditures on innovation of Lithuanian enterprises expenditure on acquisition of machinery, installation and equipment prevail (approx. 74%). Companies spend only 20% of expenditures on research and development. In 2012, nearly half of innovation-active enterprises benefited from public funding, mostly obtained from abroad;
- in the years 2006–2012, there was an increase in the share of sales turnover of innovative enterprises in the total turnover, especially for transport companies. However, the average turnover of the products new to company or new to the market per enterprise was very low compared to the EU average;
- an increase in turnover is the main objective of both innovative and non-innovative Lithuanian companies. In the analysed period, the main obstacle

to achieving the strategic objectives by Lithuanian innovative companies was strong price and quality competition.

References

CIS, 2010, Eurostat Statistics Database, *Innovation Activities and Expenditures in 2010*, http://ec.europa.eu/eurostat/web/products-datasets/-/inn_cis7_exp [access: 10.03.2016].

CIS, 2012, Eurostat Statistics Database, *Innovation Activities and Expenditures in 2012 in the Enterprises by NACE Rev. 2 Activity and Size Class*, http://ec.europa.eu/eurostat/web/products-datasets/-/inn_cis8_exp [access: 02.02.2016].

DoIA, 2012, *Development of Innovation Activities*, Statistics Lithuania, Vilnius.

DoIA, 2014, *Development of Innovation Activities*, Statistics Lithuania, Vilnius.

Dolińska M., 2010, *Innowacje w gospodarce opartej na wiedzy*, PWE, Warszawa.

Hollanders H., Es-Sadki N., Kanerva M., 2015, *Innovation Union Scoreboard 2015*, Publications Office of the European Union, Belgium.

Janasz W., Kozioł K., 2007, *Determinanty działalności innowacyjnej przedsiębiorstw*, PWE, Warszawa.

Kotler Ph., 1994, *Marketing. Analiza, planowanie, wdrażanie i kontrola*, Gebethner i S-ka, Warszawa.

Matusiak K.B. (ed.), 2011, *Innowacje i transfer technologii. Słownik pojęć*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.

OECD, Eurostat, 2005, *Podręcznik Oslo. Zasady gromadzenia i interpretacji danych dotyczących innowacji*, Zakład Wydawnictw Statystycznych, Warszawa, http://www.nauka.gov.pl/fileadmin/user_upload/43/46/43464/20081117_OSLO.pdf [access: 20.03.2016].

Pomykalski A., 2001, *Zarządzanie innowacjami*, PWN, Warszawa-Łódź.

Porter M.E., 1990, *The Competitive Advantage of Nations*, Macmillan, London.

Schumpeter J.A., 1962, *Teoria rozwoju gospodarczego*, PWN, Warszawa.